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10/049,261	05/09/2002	Markus Reifferscheid	HM-467PCT	9427

7590 05/12/2003  
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EXAMINER

BARR, MICHAEL E

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 05/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/049,261

Applicant(s)

REIFFERSCHIED ET AL.

Examiner

Michael Barr

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 5/9/2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.
2. The disclosure is objected to because of the following informalities: Page 3 of the specification makes direct reference to claim numbers. This is improper as the scope of the claims can change during prosecution.

Appropriate correction is required.

### *Drawings*

3. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 cites the limitation that the strip temperature in the furnace is adjusted to at most 50 °K above "immersion temperature into the bath". This is immersion temperature referring to the temperature of the galvanizing bath or to the strip?

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bilimoria in view of Hori et al.

Bilimoria teaches hot-dip galvanizing steel strip by introducing the strip into a pickling station to pickle the strip, then introducing the strip into a rinsing station to rinse the strip, then the strip is introduced into a drying station for drying, then the strip is introduced into a heating furnace to heat the strip, in a reducing atmosphere, to a temperature the galvanizing temperature, and then introducing the heated strip into the molten galvanizing bath, wherein the temperature that the strip is heated in the furnace is less than 50 °K above the immersion temperature into the zinc bath and the reducing atmosphere in the furnace can contain less than 20 % H<sub>2</sub> (Fig. 1; Col. 4, lines 13-27; Col. 5, line 32-Col. 6, line 55).

Bilimoria fails to teach that the steel strip is a hot-rolled steel strip. However, hot-rolled steel strip is a typical form of steel strip to be hot-dipped galvanized, as shown by Hori et al., and would have been an obvious modification to the Bilimoria process, with the expectation of

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providing the desired galvanized steel strip. Hori et al. teaches hot-dip galvanizing a steel strip, where the strip is a hot-rolled steel strip (Col. 6, lines 13-20). It would have been an obvious modification for one skilled in the art practicing Bilimoria to use a hot-rolled steel strip, with the expectation of providing the desired hot-dip galvanized steel strip, since hot-rolled steel strip is a typical form of steel strip to be hot-dipped galvanized, as shown by Hori et al.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bilimoria and Hori et al. as applied to claim 1 above, and further in view of Ackermann et al.

Bilimoria and Hori et al. do not teach the steps between the rinsing station through the inlet of the furnace are carried out hermetically screened from oxygen from the ambient surroundings. Ackermann et al. teaches a hot-dip galvanizing process and apparatus comprising a pickling station, a rinsing station, a drying station, a furnace, and a hot-dip galvanizing bath, such that each station is itself a self-contained chambers connected at short intervals in line one behind the other, where environment control of emissions are a concern (Col. 2, lines 1-67; Fig. 1). Ackermann et al. does not specifically teach that outlet of the rinsing station through the inlet of the furnace are hermetically sealed from the ambient atmosphere. However, Ackermann et al. show a detail of the furnace, whose inlet and outlet are sealed gas tight (Col. 3 lines 38-65). One of ordinary skill in the art would have found it suggested to them that the pickling, rinsing, and drying stations would also have a similar gas sealed chamber design to that of the furnace, since Ackermann et al. is concerned with environmental issues such as process emissions, and thus would be an obvious design choice in Ackermann et al. As such the connections between the stations of Ackermann et al. would hermetically sealed from the ambient atmosphere. Finally, it would have been an obvious modification for one skilled in the art, to the Bilimoria and Hori et

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al. process, to provide use the suggested hermetically sealed, continuous chamber line of Ackermann et al. to perform the pickling, rinsing, drying, and furnace heating steps of the hot-dip galvanizing process, with the expectation of providing the desired pretreatment steps while gaining the benefit of controlled process emissions, as suggested by Ackermann et al.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bilimoria and Hori et al. as applied to claim 1 above, and further in view of Isobe et al. and Seidel et al.

Bilimoria and Hori et al. fail to teach that the drying occurs in an atmosphere of nitrogen and hydrogen with heat radiation. Bilimoria teaches drying with hot air. Isobe et al. teaches hot dip galvanizing steel, where heating of the steel is advantageously performed in a reducing atmosphere of nitrogen and hydrogen, in order to prevent the generation of scale on the steel strip (Col. 4, lines 54-65). It would have been obvious to one skilled in the art to use a nitrogen and hydrogen atmosphere in the drying step of Bilimoria and Hori et al., with the expectation ensuring that scale is not generated on the steel strip during the heating, as such a benefit is known in the hot-dip galvanizing art, as shown by Isobe et al. Seidel et al. teaches drying rinsed steel by heating with hot gas or infrared radiation (Col. 5, lines 20-26). One skilled in the art reviewing Seidel would have recognized that infrared radiation is a suitable substitute for hot gases application for drying rinsed steel. Therefore, it would have been an obvious modification to Bilimoria and Hori et al. to substitute infrared heating for the hot gas heating of Bilimoria, in order to provide the drying heat of Bilimoria and Hori et al., with the expectation of providing substantially equivalent and desired drying of the rinsed steel, since it is shown by Seidel et al. that infrared heating is known in the art for drying rinsed steel.

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10. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ackermann et al.

Ackermann et al. teaches a hot-dip galvanizing process and apparatus comprising a pickling station, a rinsing station, a drying station, a furnace, and a hot-dip galvanizing bath, such that each station is itself a self-contained chambers connected at short intervals in line one behind the other, where environment control of emissions are a concern (Col. 2, lines 1-67; Fig. 1). Ackermann et al. does not specifically teach that outlet of the rinsing station through the inlet of the furnace are hermetically sealed from the ambient atmosphere. However, Ackermann et al. show a detail of the furnace, whose inlet and outlet are sealed gas tight (Col. 3 lines 38-65). One of ordinary skill in the art would have found it suggested to them that the pickling, rinsing, and drying stations would also have a similar gas sealed chamber design to that of the furnace, since Ackermann et al. is concerned with environmental issues such as process emissions, and thus would be an obvious design choice in Ackermann et al. As such the connections between the stations of Ackermann et al. would hermetically sealed from the ambient atmosphere. As shown in Fig. 1 of Ackermann et al. the stations are separated by chamber walls, which reads on the limitations of Claim 8.

*Allowable Subject Matter*

11. Claims 4-5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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12. The following is a statement of reasons for the indication of allowable subject matter:  
None of the prior art cited or reviewed by the examiner teaches or fairly suggests that the rinse include the application of the claimed water-repellant or water-binding medium to the strip.

*Conclusion*

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Barr whose telephone number is 703-305-7919. The examiner can normally be reached on Monday-Thursday 6:00 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 703-308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 or 703-305-5408 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Michael Barr  
Primary Examiner  
Art Unit 1762

MB  
May 1, 2003